

CLAIMS

1. A method of collecting a biological fluid comprising:

collecting a biological fluid by natural flow;  
5 measuring a fluid flow rate of the biological fluid; and  
pumping anticoagulant and/or preservation solution to the  
collected biological fluid at a solution flow rate;  
wherein the solution flow rate is adjusted while  
collecting the biological fluid based upon the measured fluid  
10 flow rate to preserve a selected ratio between the collected  
biological fluid and the anticoagulant and/or preservation  
solution.

2. The method of Claim 1, further comprising:  
15 collecting the biological fluid in a collection bag; and  
pumping the anticoagulant and/or preservation solution to  
the collection bag;

wherein the solution flow rate is adjusted while  
collecting the biological fluid based upon the measured fluid  
20 flow rate to preserve a selected ratio in the collection bag  
between the collected biological fluid and the anticoagulant  
and/or preservation solution.

3. The method of Claim 1, wherein the biological fluid  
25 comprises blood.

4. The method of Claim 1, wherein measuring a fluid  
flow rate of the biological fluid comprises calculating the  
variation in weight of the fluid collected.

30

5. The method of Claim 1, wherein pumping comprises:  
pumping using a peristaltic pump having a variable  
rotation speed; and  
adjusting the variable rotation speed to obtain the  
5 appropriate solution flow rate.

6. A collection machine comprising:

a fluid flow measurement device operable to measure a biological fluid flow rate;

5 a pump operable at a variable rotation speed to pump an anticoagulant and/or preservation solution at a solution flow rate;

wherein the variable rotation speed of the pump is slaved to the biological fluid flow rate.

10 7. The collection machine of Claim 6, further comprising a measuring device operable to measure the weight of a biological fluid collected and further operable to calculate the biological fluid flow rate based upon weight measurements.

15

8. The collection machine of Claim 6, further comprising a peristaltic pump.

9. A bag system comprising:
- a biological fluid collection device;
  - a collection bag in fluid communication with the fluid collection device;
  - 5 a solution bag containing anticoagulant and/or preservation solution in fluid communication with the collection bag;
  - a collection machine having:
    - a fluid flow measurement device operable to measure a
    - 10 biological fluid flow rate to the collection bag; and
    - a pump operable at a variable rotation speed to pump an anticoagulant and/or preservation solution from the solution bag to the collection bag at a solution flow rate;
  - wherein the variable rotation speed of the pump is slaved
  - 15 to the biological fluid flow rate; and
  - wherein the solution flow rate is adjusted to maintain a selected ratio of biological fluid and anticoagulant and/or preservation solution in the collection bag.
- 20 10. The system of Claim 9, wherein measurement of pressure within the system is not required to maintain the selected ratio of fluid and solution.
11. The system of Claim 9, further comprising a first
- 25 tube operable to provide fluid communication between the collection device and the collection bag.
12. The system of Claim 11, further comprising a second
- 30 solution bag and the collection bag.

13. The system of Claim 12, further comprising the a circuit opener disposed on the second tube near a connection between the second tube and the solution bag.

5

14. The system of Claim 12, further comprising a connector operable to connect the first tube and the second tube.

10 15. The system of Claim 12, wherein the first tube is connected to the collection device and the collection bag, and wherein the first tube has a length of at least 15 cm between the connection to the collection device and the connection to the collection bag.

15

16. The system of Claim 15, wherein the first tube has a length of at least 25 cm between the connection to the collection device and the connection to the collection bag.

20 17. The system of Claim 12, wherein the second tube is compressed by the pump in a compression region, and wherein the compression region has a hardness less than that of the first tube.